

WHAT IS CLAIMED IS:

- 1 1. A method of manufacturing an integrated circuit having
2 trench isolation regions in a substrate, the method comprising:
3 forming a mask layer above the substrate;
4 selectively etching the mask layer to form apertures
5 associated with locations of the trench isolation regions;
6 forming trenches in the substrate at the locations;
7 forming first type liners on first side walls of the trenches
8 associated with first type regions of the substrate; and
9 forming second type liners on second side walls of the
10 trenches associated with second type regions.
- 1 2. The method of claim 1, further comprising providing an
2 insulative material in the trenches to form the trench isolation regions.
- 1 3. The method of claim 2, further comprising removing the
2 insulative material until the silicon nitride layer is reached.
- 1 4. The method of claim 1, wherein the first type liners are a
2 first thickness and the second type liners are a second thickness, the
3 second thickness being different than the first thickness.
- 1 5. The method of claim 1, wherein the first type liners are dry
2 oxide material and the second type liners are dry heavily nitrided oxide
3 material.
- 1 6. The method of claim 1, wherein the substrate is on SOI
2 substrate.
- 1 7. The method of claim 1, wherein the substrate trenches reach
2 a buried insulative layer of the substrate.

1 8. The method of claim 1, wherein the substrate includes a
2 strained layer, wherein the strained layer includes the first type region and
3 the second type region.

1 9. A method of forming trench isolation liners in a CMOS IC,
2 the method comprising:
3 forming a trench in a layer above a substrate or in the
4 substrate, the trench separating a first doped region from a second doped
5 region;
6 forming a first liner for a first side wall in the trench, the first
7 side wall being associated with the first doped region; and
8 forming a second liner for a second side wall of the trench,
9 the second side wall associated with the second doped region;

1 10. The method of claim 9, wherein the substrate includes a
2 strained silicon layer, whereby stress in the first doped region and the
3 second doped region is more equalized due to the first liner and the
4 second liner.

1 11. The method of claim 10, wherein the first doped region is P-
2 type doped with N-type dopants and the second doped region is doped
3 with doped dopants.

1 12. The method of claim 9, wherein the first and second liners
2 are oxide liners.

1 13. The method of claim 12, wherein the first liner includes
2 oxygen.

1 14. The method of claim 13, wherein the second liner includes
2 nitrogen.

1 15. The method of claim 14, wherein the substrate is a bulk
2 substrate.

1 16. The method of claim 15, wherein the first liner provides
2 relatively equivalent stress to the first doped region as the second liner
3 provides to the second doped region.

1 17. An integrated circuit, comprising:
2 a first doped region of a substrate; a second doped region of
3 the substrate;
4 a first liner on a first side wall of a trench, the trench being
5 between the first doped region and the second doped region; and
6 a second liner on a second side wall of the trench.

1 18. The integrated circuit of claim 17, wherein the first liner is
2 formed using nitrogen.

1 19. The method of claim 18, wherein the first and second liners
2 are formed utilizing an oxygen atmosphere.

1 20. The method of claim 19, wherein the first liner is less than
2 400 Å thick.